

Homework 8
MTH 4230, Spring 2020

Due Wed., Apr. 22

Chapter in Book	Problems
10	10.11* (skip parts <i>c</i> and <i>e</i> , and you can skip the Bonferroni test of part <i>a</i>), 10.17**

* For **Problem 10.11**:

Part a: Just calculate the *studentized deleted residuals* and use them to identify outlying *Y*'s, but don't do the Bonferroni outlier test. To obtain the studentized deleted residuals in R using the `rstudent()` function, after fitting the model (using `lm()`), type:

```
> rstudent(my.reg)
```

Part b: To obtain the diagonal elements of the hat matrix (i.e. the *leverage* values), use the `hatvalues()` function, after fitting the model (using `lm()`), by typing:

```
> hatvalues(my.reg)
```

Part d: To obtain the *DFFITS*, *DFBETAS*, and *Cooke's distances*, you can use `influence.measures()`, for example by typing:

```
> influence.measures(my.reg)
```

Part f: The function `influence.measures()` returns a *list* of objects. If you save the returned *list*, one of the objects in it is a *matrix* called "`infmat`" containing the influence measures:

```
> my.inf <- influence.measures(my.reg)
> is.list(my.inf)
> names(my.inf)
> my.inf$infmat
```

You can save the *Cooke's distances* (fourth column of `my.inf$infmat`) by typing:

```
> cds <- my.inf$infmat[, 4]
```

and then make the index by typing:

> `plot(cd, pch = 19)`

** For **Problem 10.17**, to see how to get the *variance inflation factors*, refer to the 10th set of **R Notes for Regression** on the course website.